IMPROVED FRAMEWORKS FOR LOADING AND EXECUTION OF OBJECT-BASED PROGRAMS

ABSTRACT OF THE DISCLOSURE

Improved frameworks for loading and execution of portable, platform independent programming instructions within a virtual machine are described. The improved frameworks provides a mechanism that will generally improve the runtime performance of virtual machines by eliminating the need to always traverse a constant pool at runtime to execute a Java™ instruction. In addition, specific data structures that are suitable for use within a virtual machine and methods for creating such data structures are described. Accordingly, an enhanced Java™ bytecode representation having a pair of Java™ bytecode streams is disclosed. The enhanced Java™ bytecode has a Java™ code stream suitable for storing various Java™ commands as bytecodes within a code stream. A Java™ data stream of the enhanced Java™ bytecode representation is used to store the data parameters associated with the Java™ commands in the code stream. Actual parameter values, or references to actual parameter values can be provided in the data stream. Thus, data parameters can be provided for efficient execution of Java™ instructions without requiring further processing of Constant Pool at run time. As a result, the performance of Java™ complaint virtual machine can be enhanced.